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introducing impurities into a first insulation film,
and

2. A fabrication method of a semiconductor device comprising the steps of:

introducing impurities at least to a surface of said first insulation film either before or after forming said second insulation film, and

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according to claim 2, wherein said first insulation film includes a silicon oxide material containing at least 1% of carbon.

5 9. The fabrication method of a semiconductor device according to claim 2, wherein said first insulation film includes a material having a contact angle of not more than 30° of purified water with respect to said first insulation film.


10. The fabrication method of a semiconductor device according to claim 2, wherein said first insulation film includes an inorganic SOG film.

11. The fabrication method of a semiconductor device according to claim 2, wherein said polishing is carried out by chemical mechanical polishing.

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12. The fabrication method of a semiconductor device according to claim 11, wherein a surfactant is used in said polishing step.


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13. The fabrication method of a semiconductor device according to claim 2, wherein said step of introducing impurities comprises the step of introducing impurities


~~into said first insulation film by implantation.~~

~~12/~~
14. The fabrication method of a semiconductor device according to claim 13, wherein said impurities include at least one element selected from the group consisting of argon, boron, nitrogen and phosphorus.

15. A fabrication method of a semiconductor device comprising the steps of:
forming a first insulation film on a substrate,
introducing impurities at least to a surface of said
5 first insulation film, and
effecting planarization by polishing said first insulation film.


~~16. The fabrication method of a semiconductor device according to claim 15, wherein said step of introducing impurities comprises the step of introducing impurities only to a surface of said first insulation film.~~

17. The fabrication method of a semiconductor device according to claim 15, further comprising the step of forming a third insulation film on a surface of a device after said polishing.

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according to claim 15, wherein a surfactant is used in said polishing step.

24. The fabrication method of a semiconductor device according to claim 15, wherein said step of introducing impurities comprises the step of introducing impurities into said first insulation film by implantation.

25. The fabrication method of a semiconductor device according to claim 15, wherein said impurities include at least one element selected from the group consisting of argon, boron, nitrogen and phosphorus.

26. The fabrication method of a semiconductor device comprising the steps of:

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forming a first insulation film on a substrate,
forming a second insulation film on said first

5 insulation film, and

effecting planarization by polishing at least said second insulation film by chemical mechanical polishing using an abrasive liquid including a surfactant.

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27. The fabrication method of a semiconductor device according to claim 26, wherein said surfactant includes a fatty acid compound.

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4. The fabrication method of a semiconductor device according to claim 2, wherein said second insulation film includes a silicon oxide film formed by plasma CVD.

5. The fabrication method of a semiconductor device according to claim 2, wherein said step of introducing impurities comprises the steps of

5 Sub 5/17 forming a photoresist on a surface of a device before impurities are introduced to said first insulation film, and

introducing impurities into said first insulation film via said photoresist film.

6. The fabrication method of a semiconductor device according to claim 2, further comprising the step of

Sub B1 forming a third insulation film on a surface of a device after said polishing.

7. The fabrication method of a semiconductor device according to claim 2, further comprising the step of forming a fourth insulation film on a surface of a device before said first insulation film is formed.

Sub B2 8. The fabrication method of a semiconductor device

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18. The fabrication method of a semiconductor device according to claim 15, further comprising the step of forming a fourth insulation film on a surface of a device before said first insulation film is formed.

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19. The fabrication method of a semiconductor device according to claim 15, wherein said first insulation film includes a silicon oxide material containing at least 1% of carbon.

20. The fabrication method of a semiconductor device according to claim 15, wherein said first insulation film includes a material having a contact angle of not more than 30° of purified water with respect to said first
5 insulation film.

21. The fabrication method of a semiconductor device according to claim 15, wherein said first insulation film includes an inorganic SOG film.

22. The fabrication method of a semiconductor device according to claim 15, wherein said polishing is carried out according to chemical mechanical polishing.

23. The fabrication method of a semiconductor device

15 28. The fabrication method of a semiconductor device according to claim 26, further comprising the step of introducing impurities into said first insulation film after said polishing step.

29. An abrasive liquid including at least a surfactant used for a chemical mechanical polishing process.

30. The abrasive liquid according to claim 29, wherein said surfactant includes a fatty acid compound.

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